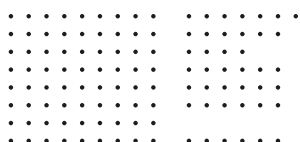


halfRF for UHD Radiocameras

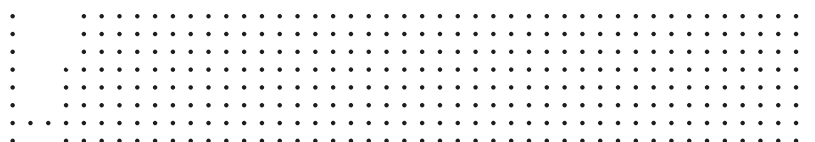
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halfRF for UHD Radiocameras

Since production of Ultra High Definition (UHD) programmes is now becoming increasingly common one aspect of program making that urgently needs addressing is the provision of high quality wireless UHD video. Moving to UHD causes a significant increase (at least 4x) in video bandwidth requirements.

BBC R&D has previously demonstrated spectral efficiency improvements using halfRF (MIMO Multiple In Multiple Out) technology and has now created a halfRF UHD Radiocamera demonstrator.

Techniques such as MIMO, advanced error correction techniques and non-uniform constellations are just some of the advanced RF tools used in the BBC R&D's halfRF UHD Radiocamera system.

The system delivers a rugged 130Mb/s using 20MHz of spectrum at 7GHz showing a 50% reduction in spectrum requirements over traditional techniques.

BBC R&D has a significant pedigree in this area of work and has produced prototype DVB-T based systems as early as 1999. Building on our early work and combining it with detailed research on radiocamera channels along with expertise in modulation systems acquired from our work with DVB-NGH, DVB-T2, and the HD halfRF Radiocamera system means that we have been able to engineer a state-of-the-art UHD Radiocamera system.

Features include

Operation over 7.1 to 7.4GHz (other bands possible)

Spatially-multiplexed 4x8 MIMO for enhanced throughput

64QAM operation using maximum likelihood MIMO decoders

Non-uniform constellations to increase limiting capacity beyond uniform QAM BICM limit

Dual polarised, horizontal and vertical simultaneous transmission

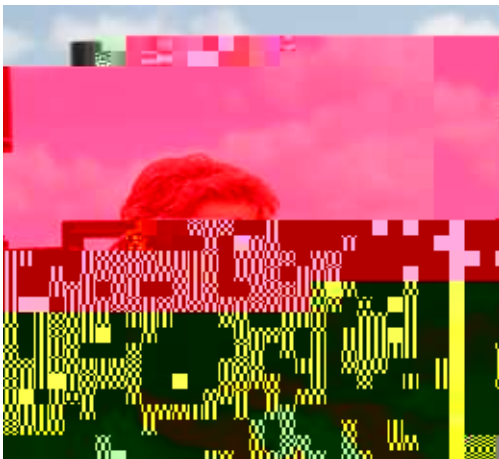
LDPC for superior error correction

Time-interleaver to combat short duration 'flat-fades'

4-way diversity to help with difficult propagation conditions – essential for 7GHz operation

Contact:

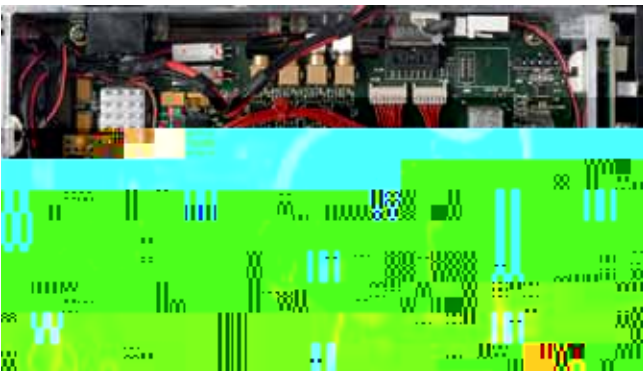
ian.wagdin@bbc.co.uk



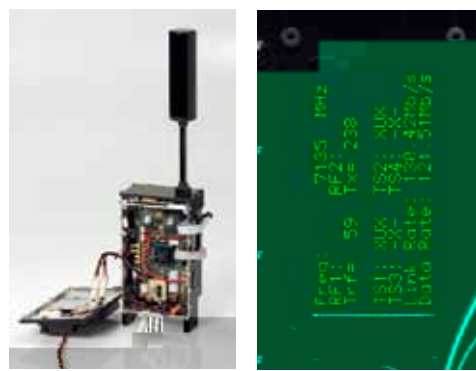
halfRF UHD transmitter



halfRF UHD receiver



halfRF UHD modulator



halfRF UHD transmitter and user display